

IN THE CLAIMS:

Please append claims 140 - 192.

Please amend claims 26 - 28, 30, 35 - 37, 39 - 50, 55 - 56, 59, 63, 72 - 76, 79, 86, 98 - 99, 101, 104 - 105, 111 - 112, 118, 123, 130, and 135.

1 1 - 25. (canceled)

1 26. (Currently amended): A structure comprising an assemblage of
2 separate ~~functional blocks~~electronic devices, each ~~functional block~~electronic device
3 having a first surface and a second surface substantially parallel to said first surface, said
4 ~~functional block~~electronic device further having side surfaces connecting said first
5 surface to said second surface, said first surface having a smaller area than said second
6 surface.

1 27. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device has a ~~maximum linear length~~length dimension of about 50
3 microns or less.

1 28. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device has a trapezoidal cross-section.

1 29. (Previously added): The structure of claim 26 wherein said side
2 surfaces are etched surfaces.

1 30. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device is a multilayered structure.

1 31. (Previously added): The structure of claim 30 wherein said
2 multilayered structure includes a metal layer.

1 32. (Previously added): The structure of claim 30 wherein said
2 multilayered structure includes an insulator layer.

1 33. (Previously added): The structure of claim 30 wherein said
2 multilayered structure includes a layer of silicon dioxide.

1 34. (Previously added): The structure of claim 30 wherein said
2 multilayered structure includes a layer of silicon nitride.

1 35. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device comprises material is selected from the group
3 consisting of silicon, gallium arsenide, aluminum gallium arsenide, diamond, and
4 germanium.

1 36. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device comprises a group III-V compound.

1 37. (Currently amended): The structure of claim 26 wherein said
2 ~~functional block~~electronic device comprises a group II-VI compound.

1 38. (Previously added): The structure of claim 26 wherein the
2 perimeter of said first surface has a rectangular shape, an octagonal shape, or a circular
3 shape.

1 39. (Currently amended): ~~A functional block~~An electronic device
2 comprising semiconductor material and having a tapered profile of a shape generally that
3 ~~of a truncated pyramid~~, said ~~functional block~~electronic device having a ~~maximum linear~~
4 length dimension of ~~about 50 microns or less~~less than or equal to 1 mm in measure, said
5 ~~functional block~~electronic device being separated from a substrate.

1 40. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 further having a first surface and a second surface substantially parallel to said
3 first surface.

1 41. (Currently amended): The ~~functional block~~electronic device of
2 claim 40 wherein the perimeter of said first surface has a rectangular shape, an octagonal
3 shape, or a circular shape.

1 42. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 wherein said semiconductor material is a multilayered structure.

1 43. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 wherein said semiconductor material is a group III-V compound.

1 44. (Currently amended): The ~~functional block~~electronic device of
2 claim 43 wherein said semiconductor material is gallium arsenide.

1 45. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 wherein said semiconductor material is a light-emitting diode.

1 46. (Currently amended): The ~~functional block~~electronic device of
2 claim 45 wherein said semiconductor material is a gallium arsenide light-emitting diode.

1 47. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 wherein said semiconductor material is a laser diode.

1 48. (Currently amended): The ~~functional block~~electronic device of
2 claim 39 ~~having wherein a cross-section thereof shows one of a cylindrical shape, a~~
3 rectangular shape, a square shape, a hexagonal shape, ~~a pyramid shape, a T-shape, and a~~
4 kidney shape.

1 49. (Currently amended): A shaped block of material adapted for being
2 received in a recess of a substrate, said shaped block of material ~~comprising a solid~~
3 having sloped sides and a top surface connected to a bottom surface by said sloped sides,
4 said top surface being substantially parallel to said bottom surface, said top surface being
5 non-congruent with said bottom surface.

1 50. (Currently amended): The shaped block of claim 49 wherein said
2 block of material has a ~~maximum linear dimension of about 50 microns or less~~length
3 measurement less than or equal to 50 microns.

1 51. (Previously added): The shaped block of claim 49 wherein said
2 sloped sides are etched sides.

1 52. (Previously added): The shaped block of claim 49 wherein said
2 sloped sides have a slope greater than about twenty degrees relative to a line normal to
3 said top surface.

1 53. (Previously added): The shaped block of claim 49 wherein said
2 material comprises a multilayered structure.

1 54. (Previously added): The shaped block of claim 49 wherein said
2 material is selected from the group consisting of silicon, gallium arsenide, aluminum
3 gallium arsenide, diamond, and germanium.

1 55. (Currently amended): The shaped block of claim 49 wherein said
2 material ~~is~~comprises a group III - V compound.

1 56. (Currently amended): The shaped block of claim 49 wherein said
2 material ~~is~~comprises a group II - VI compound.

1 57. (Previously added): The shaped block of claim 49 being an optical
2 detector.

1 58. (Previously added): The shaped block of claim 49 wherein the
2 perimeter of said first surface has a rectangular shape, an octagonal shape, or a circular
3 shape.

1 59. (Currently amended): A shaped functional block comprising a
2 semiconductor material and having a shape adapted for self-alignment within a shaped
3 ~~opening-recess formed~~ through a substrate surface, said block having a first surface and a
4 second surface and having etched sides which are sloped such that said block fits into
5 said shaped opening only in an orientation where said first surface is exposed through
6 said substrate surface.

1 60. (Previously added): The functional block of claim 59 wherein said
2 first surface includes a conductive contact disposed thereon.

1 61. (Previously added): The functional block of claim 59 wherein said
2 first surface has an area smaller than said second surface.

1 62. (Previously added): The functional block of claim 61 wherein said
2 first surface has a circular perimeter, a rectilinear perimeter, or an octagonal perimeter.

1 63. (Currently amended): The functional block of claim 59 having a
2 maximum ~~linear-length~~ dimension of about ~~50 microns~~ 1 mm or less.

1 64. (Previously added): The functional block of claim 59 further
2 comprising a multilayered structure.

1 65. (Previously added): The functional block of claim 64 wherein said
2 multilayered structure includes a metal layer.

1 66. (Previously added): The functional block of claim 64 wherein said
2 multilayered structure includes an insulator layer.

1 67. (Previously added): The functional block of claim 64 wherein said
2 multilayered structure includes a layer of silicon dioxide.

1 68. (Previously added): The functional block of claim 64 wherein said
2 multilayered structure includes a layer of silicon nitride.

1 69. (Previously added): The functional block of claim 59 being a light-
2 emitting diode.

1 70. (Previously added): The functional block of claim 59 being a laser
2 diode.

1 71. (Previously added): The functional block of claim 59 being an
2 optical detector.

1 72. (Currently amended): A semiconductor microstructure comprising
2 a ~~wedge-shaped~~shaped block having a first surface substantially parallel to a second
3 surface, said first surface having an associated first area, said second surface having an
4 associated second area, said first area being larger than said second area, an edge adjacent
5 said first surface being sloped, said block having a maximum ~~linear~~length dimension of
6 about ~~50 microns~~1 mm or less in measure.

1 73. (Currently amended): The semiconductor microstructure of claim
2 72 wherein said ~~wedge-shaped~~shaped block comprises material selected from the group
3 consisting of silicon, gallium arsenide, aluminum gallium arsenide, diamond, and
4 germanium.

1 74. (Currently amended): The semiconductor microstructure of claim
2 72 wherein said ~~wedge-shaped~~shaped block comprises a group III-V compound.

1 75. (Currently amended): The semiconductor microstructure of claim
2 72 wherein said ~~wedge-shaped~~shaped block comprises a group II-VI compound.

1 76. (Currently amended): The semiconductor microstructure of claim
2 72 wherein said ~~wedge-shaped~~shaped block is a multilayered structure.

1 77. (Previously added): The semiconductor microstructure of claim 76
2 wherein said multilayered structure constitutes a light-emitting diode.

1 78. (Previously added): The semiconductor microstructure of claim 77
2 wherein said multilayered structure includes gallium arsenide.

1 79. (Currently amended): A portion of an integrated circuit device
2 comprising a shaped functional block ~~separated from a substrate~~, said functional block
3 comprising a semiconductor material and having a ~~maximum linear~~length dimension of
4 ~~about 50 microns or less~~less than or equal to 1 mm in measure, ~~said functional block~~
5 ~~having a wedge-shaped profile~~, said functional block having etched sides.

1 80. (Previously added): The portion of an integrated circuit device of
2 claim 79 wherein said semiconductor material is a multilayered structure.

1 81. (Previously added): The portion of an integrated circuit device of
2 claim 79 wherein said semiconductor material is selected from the group consisting of
3 silicon, gallium arsenide, aluminum gallium arsenide, diamond, and germanium.

1 82. (Previously added): The portion of an integrated circuit device of
2 claim 79 wherein said semiconductor material is a group III-V compound.

1 83. (Previously added): The portion of an integrated circuit device of
2 claim 79 wherein said semiconductor material is a group II-VI compound.

1 84. (Previously added): The portion of an integrated circuit device of
2 claim 79 wherein said semiconductor material constitutes a light-emitting diode.

1 85. (Previously added): The portion of an integrated circuit device of
2 claim 84 wherein said light-emitting diode is a gallium arsenide light-emitting diode.

1 86. (Currently amended): An electronic chip comprising a shaped
2 block of material separated from a substrate and having a first surface and a second
3 surface substantially parallel to said first surface, said block further having etched side
4 surfaces extending from said first surface to said second surface, said first surface having
5 an areal measurement different than an areal measurement of said second surface, said
6 first surface having a conductive contact disposed thereon.

1 87. (Previously added): The electronic chip of claim 86 wherein said
2 block of material has a width of about 50 microns or less and a length of about 50
3 microns or less.

1 88. (Previously added): The electronic chip of claim 86 wherein said
2 etched side surfaces have a slope relative to a line normal to said first surface of greater
3 than about twenty degrees.

1 89. (Previously added): The electronic chip of claim 86 wherein said
2 material comprises a multilayered structure including one or more layers of
3 semiconductor material.

1 90. (Previously added): The electronic chip of claim 89 wherein said
2 multilayered structure includes a silicon layer and a gallium arsenide layer.

1 91. (Previously added): The electronic chip of claim 89 wherein said
2 multilayered structure includes a p-type gallium arsenide layer, an n-type gallium
3 arsenide layer, and a eutectic layer.

1 92. (Previously added): The electronic chip of claim 91 wherein said
2 multilayered structure further includes a silicon substrate layer.

1 93. (Previously added): The electronic chip of claim 86 wherein said
2 material is semiconductor material.

1 94. (Previously added): The electronic chip of claim 86 wherein said
2 electronic chip is a light-emitting diode.

1 95. (Previously added): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide resonant tunneling diode.

1 96. (Previously added): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide diode.

1 97. (Previously added): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide microwave device.

1 98. (Currently amended): The electronic chip of claim 86 ~~having~~
2 wherein a cross-section thereof shows one of a cylindrical shape, a rectangular shape, a
3 square shape, a hexagonal shape, ~~a pyramid shape~~, a T-shape, and a kidney shape.

1 99. (Currently amended): An electronic chip comprising a shaped
2 functional block including a semiconductor material, said functional block having a
3 ~~wedge shape~~ tapered sides with a top surface and a bottom surface smaller than said top
4 surface, said functional block further having a ~~maximum linear dimension of about 50~~
5 ~~microns or less, the~~ length measurement less than or equal to 1 mm, a perimeter of said
6 top surface having a rectilinear shape, a circular shape, or an octagonal shape.

1 100. (Previously added): The electronic chip of claim 99 wherein said
2 top surface is substantially parallel to said bottom surface.

1 101. (Currently amended): The electronic chip of claim 99 further
2 including a conductive contact disposed atop either or both said top surface and said
3 bottom surface.

1 102. (Previously added): The electronic chip of claim 99 wherein said
2 semiconductor material is a multilayered structure.

1 103. (Previously added): The electronic chip of claim 102 wherein said
2 multilayered structure constitutes a light-emitting diode.

1 104. (Currently amended): An electronic component separated from a
2 first substrate comprising:
3 a first surface;
4 a conductive contact disposed atop said first surface;
5 a second surface in substantially parallel relation to said first surface; and
6 etched surfaces connecting said first surface to said second surface,
7 said etched surfaces being ~~in non-parallel relation to one another~~tapered to
8 define at least a beveled edge adjacent said first surface,
9 wherein said electronic component is adapted for self-alignment within a
10 shaped opening through a surface of a second substrate.

1 105. (Currently amended): The electronic component of claim 104
2 wherein said amount of semiconductor material has a maximum ~~linear dimension~~length
3 measurement of about 50 microns or less.

1 106. (Previously added): The electronic component of claim 104
2 wherein said etched surfaces are formed by a wet etch process.

1 107. (Previously added): The electronic component of claim 104
2 wherein said etched surfaces are formed by a mask edge.

1 108. (Previously added): The electronic component of claim 104
2 wherein said etched surfaces are formed by a reactive ion etch process.

1 109. (Previously added): The electronic component of claim 104
2 wherein said etched surfaces are formed by an ion milling process.

1 110. (Previously added): The electronic component of claim 104 being
2 a light-emitting diode.

1 111. (Currently amended): A light-emitting diode (LED) comprising a
2 shaped semiconductor block having tapered sides, said semiconductor block comprising a
3 first surface and a second surface in substantially parallel relation to said first surface,
4 said tapered sides defining at least a beveled edge adjacent at least one of said first and
5 second surfaces.

1 112. (Currently amended): The LED of claim 111 wherein said
2 semiconductor block has a maximum linear length dimension ~~of about 50 microns or~~
3 less than or equal to 50 microns in measure.

1 113. (Previously added): The LED of claim 111 wherein said tapered
2 sides are etched sides.

1 114. (Previously added): The LED of claim 111 incorporated in an
2 active display.

1 115. (Previously added): The LED of claim 111 wherein said
2 semiconductor block is a multilayered structure.

1 116. (Previously added): The LED of claim 115 wherein said
2 multilayered structure includes gallium arsenide.

1 117. (Previously added): The LED of claim 115 wherein said
2 multilayered structure includes a group III-V compound.

1 118. (Currently amended): A light-emitting diode (LED) comprising an
2 amount of semiconductor material, said semiconductor material having a first surface and
3 a second surface smaller than said first surface, said semiconductor material having non-
4 parallel side surfaces connecting said first surface to said second surface, said LED
5 having a ~~maximum linear~~length dimension of ~~about 50 microns or less~~ than or equal to 1
6 mm.

1 119. (Previously added): The LED of claim 118 wherein said first
2 surface is in substantially parallel relation to said second surface.

1 120. (Previously added): The LED of claim 118 wherein said
2 semiconductor material includes a group III-V compound.

1 121. (Previously added): The LED of claim 120 wherein said
2 semiconductor material includes gallium arsenide.

1 122. (Previously added): The LED of claim 118 wherein the perimeter
2 of said first surface has a rectangular shape, an octagonal shape, or a circular shape.

1 123. (Currently amended): A light-emitting diode (LED) comprising a
2 block of semiconductor material including gallium arsenide, said block having a top
3 surface and a bottom surface connected to said top surface by sloped surfaces, said top
4 and bottom surfaces having different areal measurements, said block having a ~~maximum~~
5 ~~linear dimension~~length measurement of about ~~50 microns~~ 1 mm or less.

1 124. (Previously added): The LED of claim 123 wherein said sloped
2 surfaces are etched surfaces.

1 125. (Previously added): The LED of claim 124 wherein said etched
2 surfaces are formed by a wet etch process.

1 126. (Previously added): The LED of claim 124 wherein said etched
2 surfaces are formed by a mask edge.

1 127. (Previously added): The LED of claim 124 wherein said etched
2 surfaces are formed by a reactive ion etch process.

1 128. (Previously added): The LED of claim 124 wherein said etched
2 surfaces are formed by an ion milling process.

1 129. (Previously added): The LED of claim 123 wherein the perimeter
2 of said top surface has a rectangular shape, an octagonal shape, or a circular shape.

1 130. (Currently amended): A laser diode comprising a ~~wedge-~~
2 ~~shaped~~shaped block of semiconductor material having a ~~maximum linear length~~
3 dimension of about ~~50 microns~~ 1 mm or less in measure, said block of semiconductor
4 having a tapered edge.

1 131. (Previously added): The laser diode of claim 130 wherein said
2 semiconductor material comprises a group III-V compound.

1 132. (Previously added): The laser diode of claim 131 wherein said
2 semiconductor material comprises gallium arsenide.

1 133. (Previously added): The laser diode of claim 130 wherein said
2 block comprises first and second surfaces in parallel relation and etched side surfaces
3 connecting said first and second surfaces, said first surface having an area different than
4 an area of said second surface.

1 134. (Previously added): The laser diode of claim 130 incorporated in
2 an optical data channel.

1 135. (Currently amended): An optical detector comprising a ~~wedge-~~
2 ~~shaped~~shaped block of semiconductor material having a ~~maximum linear~~
3 ~~dimension~~length measurement of about ~~50 microns~~1 mm or less, said block of
4 semiconductor material having a beveled edge adjacent a major surface thereof.

1 136. (Previously added): The optical detector of claim 135 wherein said
2 semiconductor material comprises a group III-V compound.

1 137. (Previously added): The optical detector of claim 136 wherein said
2 semiconductor material comprises gallium arsenide.

1 138. (Previously added): The optical detector of claim 135 wherein said
2 block comprises first and second surfaces in parallel relation and etched side surfaces
3 connecting said first and second surfaces, said first surface having an area different than
4 an area of said second surface.

1 139. (Previously added): The optical detector of claim 135 incorporated
2 in an optical data channel.

1 140. (New): The structure of claim 26 wherein said electronic device
2 has a length dimension of about 1 mm or less.

1 141. (New): The structure of claim 26 wherein said electronic device
2 has a length dimension of about 500 microns or less.

1 142. (New): The structure of claim 26 wherein said electronic device
2 has an edge portion that is beveled.

1 143. (New): The structure of claim 26 wherein said electronic device is
2 shaped like a truncated pyramid.

1 144. (New): The electronic device of claim 39 wherein said length
2 dimension less than or equal to 500 microns.

1 145. (New): The electronic device of claim 39 wherein said length
2 dimension is less than or equal to 50 microns.

1 146. (New): The electronic device of claim 39 wherein said profile has
2 a trapezoidal shape.

1 147. (New): The electronic device of claim 39 wherein said profile
2 shows at least a partially beveled edge.

1 148. (New): The electronic device of claim 39 having one of a pyramid
2 shape and a truncated pyramid shape.

1 149. (New): The shaped block of claim 49 wherein said block of
2 material has a length measurement less than or equal to 500 microns.

1 150. (New): The shaped block of claim 49 wherein said block of
2 material has a length measurement less than or equal to 1 mm.

1 151. (New): The shaped block of claim 49 wherein said sloped sides
2 have a trapezoidal profile.

1 152. (New): The shaped block of claim 49 wherein said sloped sides
2 define a portion of a beveled edge.

1 153. (New): The shaped block of claim 49 wherein said shaped block
2 has a shape of a truncated pyramid.

1 154. (New): The functional block of claim 59 having a maximum length
2 dimension of about 500 micron or less.

1 155. (New): The functional block of claim 59 having a maximum length
2 dimension of about 50 micron or less.

1 156. (New): The functional block of claim 59 wherein said etched sides
2 are characterized by having a trapezoidal profile.

1 157. (New): The functional block of claim 59 wherein said etched sides
2 form a beveled edge adjacent said first surface.

1 158. (New): The functional block of claim 59 having a shape of a
2 truncated pyramid.

1 159. (New): The semiconductor microstructure of claim 72 wherein said
2 length dimension further is about 500 microns or less in measure.

1 160. (New): The semiconductor microstructure of claim 159 wherein
2 said length dimension further is about 50 microns or less in measure.

1 161. (New): The semiconductor microstructure of claim 72 wherein said
2 edge has a trapezoidal profile.

1 162. (New): The semiconductor microstructure of claim 72 wherein said
2 edge is beveled.

1 163. (New): The semiconductor microstructure of claim 72 wherein said
2 shaped block has a truncated pyramid appearance.

1 164. (New): The portion of an integrated circuit device of claim 79
2 wherein said length dimension further is less than or equal to 500 microns in measure.

1 165. (New): The portion of an integrated circuit device of claim 164
2 wherein said length dimension further is less than or equal to 50 microns in measure.

1 166. (New): The portion of an integrated circuit device of claim 79
2 wherein said etched sides have a form a trapezoidal profile.

1 167. (New): The portion of an integrated circuit device of claim 79
2 wherein said functional block further comprises a first major surface and a second major
3 surface connected to said first major surface by said etched sides, a portion of said etched
4 sides adjacent to said first major surface forming a beveled edge.

1 168. (New): The portion of an integrated circuit device of claim 79
2 wherein said functional block has a shape of a truncated pyramid.

1 169. (New): The electronic chip of claim 86 wherein said block of
2 material has a width of about 1 mm or less and a length of about 1 mm or less.

1 170. (New): The electronic chip of claim 86 wherein said block of
2 material has a width of about 500 microns or less and a length of about 500 microns or
3 less.

1 171. (New): The electronic chip of claim 86 wherein said shaped block
2 has an outwardly sloped profile.

1 172. (New): The electronic chip of claim 86 wherein said shaped block
2 has an inwardly sloped profile.

1 173. (New): The electronic chip of claim 86 wherein a profile of said
2 shaped block resembles a trapezoid.

1 174. (New): The electronic chip of claim 86 wherein said etched side
2 surfaces define a beveled edge adjacent said first surface.

1 175. (New): The electronic chip of claim 86 wherein said shaped block
2 is one of a pyramid shape and a truncated pyramid shape.

1 176. (New): The electronic chip of claim 99 wherein said length
2 measurement further is less than or equal to 500 microns.

1 177. (New): The electronic chip of claim 176 wherein said length
2 measurement further is less than or equal to 50 microns.

1 178. (New): The electronic chip of claim 99 wherein said tapered sides
2 define at least a beveled edge adjacent said top surface.

1 179. (New): The electronic component of claim 104 wherein said
2 amount of semiconductor material has a maximum length measurement of about 1 mm or
3 less.

1 180. (New): The electronic component of claim 104 wherein said
2 amount of semiconductor material has a maximum length measurement of about 500
3 microns or less.

1 181. (New): The LED of claim 111 wherein said semiconductor block
2 has a length dimension less than or equal to 1 mm in measure.

1 182. (New): The LED of claim 111 wherein said semiconductor block
2 has a length dimension less than or equal to 500 microns in measure.

1 183. (New): The LED of claim 118 wherein said length dimension
2 further is less than or equal to 500 microns.

1 184. (New): The LED of claim 183 wherein said length dimension
2 further is less than or equal to 50 microns.

1 185. (New): The LED of claim 118 further comprising a beveled edge
2 formed adjacent one of said first and second surfaces.

1 186. (New): The LED of claim 123 wherein said length measurement
2 further is about 500 microns or less.

1 187. (New): The LED of claim 186 wherein said length measurement
2 further is about 50 microns or less.

1 188. (New): The LED of claim 124 wherein said sloped surfaces define
2 a beveled edge adjacent one of said top and bottom surfaces.

1 189. (New): A shaped block of semiconductor material having tapered
2 sides, said block of material comprising a first surface and a second surface in
3 substantially parallel relation to said first surface, said tapered sides defining a beveled
4 edge adjacent at least one of said first and second surfaces.

1 190. (New): The shaped block of claim 189 having a maximum length
2 dimension less than or equal to 1 mm in measure.

1 191. (New): The shaped block of claim 189 having a maximum length
2 dimension less than or equal to 500 microns in measure.

1 192. (New): The shaped block of claim 189 having a maximum length
2 dimension less than or equal to 50 microns in measure.